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IS 8856 (1991): Hexagon weld nuts [PGD 31: Bolts, Nuts and Fasteners Accessories]



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भारतीय मानक

षटकोणी वेल्ड ढिबरियाँ – विशिष्ट

( पहला पुनरीक्षण )

*Indian Standard*

HEXAGON WELD NUTS — SPECIFICATION

( *First Revision* )

UDC 621.882.31

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**BUREAU OF INDIAN STANDARDS**  
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG  
NEW DELHI 110002

September 1991

Price Group 2

## **FOREWORD**

This Indian Standard ( First Revision ) was adopted by the Bureau of Indian Standards, after the draft finalized by the Bolts, Nuts and Fasteners Accessories Sectional Committee had been approved by the Light Mechanical Engineering Division Council.

This standard was originally published in 1973. In this revision contents of the standard have been revised and harmonized with the latest versions of basic standards related to fasteners.

As mentioned in the explanatory note of the earlier version, due to their geometry, which is different from the standard nut, the hexagon weld nuts would not meet the proof loads that are prescribed for the standard nuts. Hence, only hardness values are specified. Thickness *m* for hexagon weld nuts is slightly higher than normal for sizes **M 4** and **M 5**, since it has been experienced that in cold forging higher thickness is preferable to maintain dimensional consistency and for good tool life.

Following changes have been made in this revision:

- a) Material specification has been incorporated; and
- b) In Table 2, maximum sheet thickness has been included.

The width across flat dimension has not been modified to the present standard values due to the following reasons:

- a) To provide sufficient welding area at the projections,
- b) The hexagon weld nuts are not subject to wrenching and as such usage of spanner is not involved, and
- c) To avoid distortion of threads by enabling the current to follow a path farther from the threads.

In preparation of this standard assistance has been derived from DIN 929 - 1987 'Hexagon weld nuts' issued by Deutsches Institut für Normung ( DIN ).

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values ( revised )'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

**AMENDMENT NO. 1 JANUARY 2012  
TO  
IS 8856 : 1991 HEXAGON WELD NUTS —  
SPECIFICATION**

**( *First Revision* )**

*(Page 1, Tables 1 and 2, clause 3, line 5)* — Substitute ‘6 G’ for ‘6 g’.

*(Page 1, Tables 1 and 2, clause 3)* — Add the following after Hardness values:

‘NOTE — Alternatively proof load test as per IS 1367 (Part 6) : 1994/ISO 898 - 2 : 1992 can also be used to qualify.’

(PG 31)

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Reprography Unit, BIS, New Delhi, India

# Indian Standard

## HEXAGON WELD NUTS — SPECIFICATION

( First Revision )

### 1 SCOPE

**1.1** This standard covers the requirements for hexagon weld nuts for electrical resistance welding in the size range M 3 to M 16.

**1.2** General information on the use of hexagon weld nuts is given in the Annex A.

### 2 REFERENCES

The following Indian Standards are necessary adjuncts to this standard:

IS No.	Title
1367 ( Part 1 ) : 1980	Technical supply conditions for threaded steel fasteners: Part 1 Introduction and general information ( <i>second revision</i> )
1367 ( Part 2 ) : 1979	Technical supply conditions for threaded steel fasteners: Part 2 Product grades and tolerances ( <i>second revision</i> )
1367 ( Part 10 ) : 1979	Technical supply conditions for threaded steel fasteners: Part 10 Surface discontinuities on nuts ( <i>second revision</i> )
1367 ( Part 18 ) : 1979	Technical supply conditions for threaded steel fasteners: Part 18 Marking and mode of delivery ( <i>second revision</i> )
2614 : 1969	Methods for sampling of fasteners ( <i>first revision</i> )

### 3 TECHNICAL SUPPLY CONDITIONS

Dimensions	Tables 1 and 2	
Tolerance	Product Grade	A
	Indian Standard	IS 1367 ( Part 2 ) : 1979
	Pitch	Coarse
Thread	Tolerances	6 g
	Indian Standards	IS 4218 ( Part 5 ) : 1979 IS 4218 ( Part 6 ) : 1978
Material	Steel <sup>1</sup> with a maximum carbon content of 0.25 %	
Hardness	M3 & M4	170 HV to 302 HV
	Above M4	188 HV to 302 HV

<sup>1</sup>If a specific steel grade or a different material is required, this shall be agreed between the purchaser and the supplier.

### IS No.

### Title

4218  
( Part 5 ) : 1979 ISO metric screw threads: Part 5 Tolerances ( *first revision* )

4218  
( Part 6 ) : 1979 ISO metric screw threads: Part 6 Limits of sizes for commercial bolts and nuts ( diameter range 1 to 52 mm ) ( *first revision* )

### 4 DESIGNATION

**4.0** The hexagon weld nuts shall be designated by the nomenclature, size and number of this standard.

**4.1** A hexagon weld nut of size M 8 shall be designated as :

Hexagon Weld Nut IS 8856 — M 8

### 5 GENERAL REQUIREMENTS

**5.1** With respect to surface discontinuities, the weld nuts shall conform to IS 1367 ( Part 10 ) : 1979.

**5.2** In respect of requirement not covered in this standard, the nuts shall conform to IS 1367 ( Part 1 ) : 1980.

### 6 SAMPLING

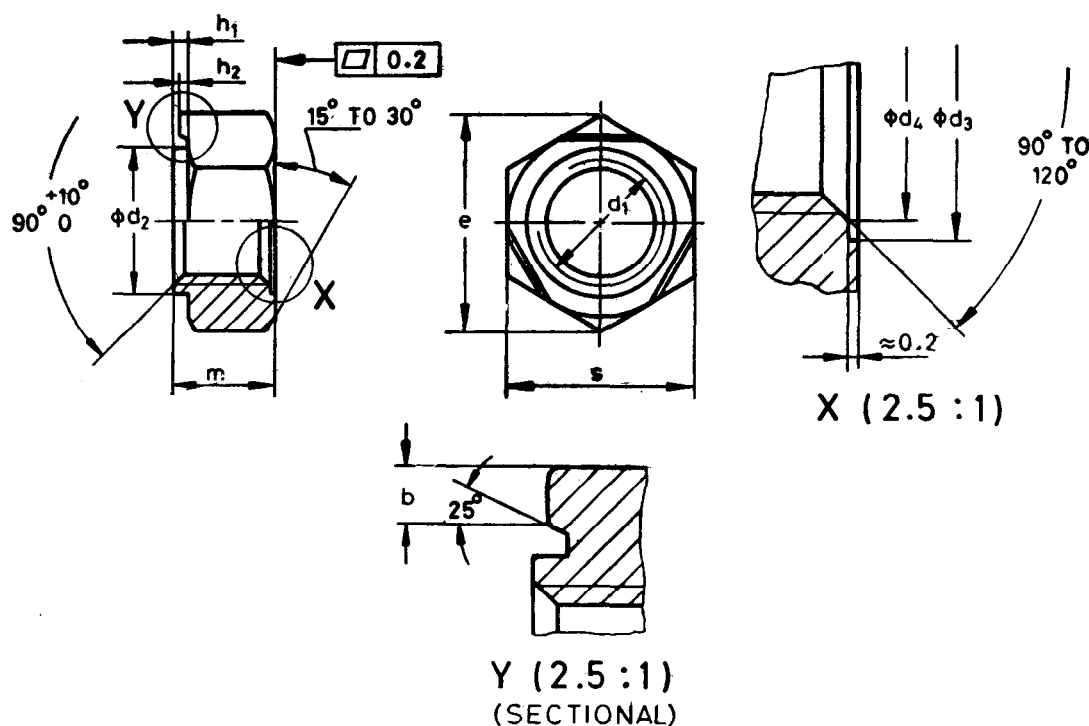
Sampling and criteria for acceptance shall be in accordance with IS 2614 : 1969.

### 7 MARKING AND MODE OF DELIVERY

The marking of the weld nuts and mode of delivery shall be in accordance with IS 1367 ( Part 18 ) : 1979. The weld nuts shall not be marked with the property class.

**Table 1 Dimensions for Hexagon Weld Nuts**  
( Clause 3 )

All dimensions in millimetres.

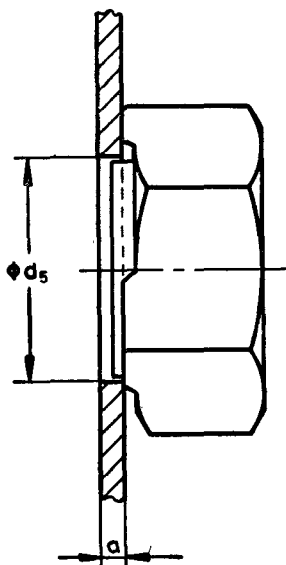


Thread Size	$d_1$	M3	M4	M5	M6	M8	M10	M12	M16
Pitch $P$		0.5	0.7	0.8	1	1.25	1.5	1.75	2
$s$	Nom =	7.5	9.0	10	11	14	17	19	24
	Min	7.28	8.78	9.78	10.73	13.73	16.73	18.67	23.67
$m$	Nom =	3	3.5	4	5	6.5	8	10	13
	Min	2.75	3.2	3.7	4.7	6.14	7.64	9.64	12.57
$d_2$	Nom	4.5	6	7	8	10.5	12.5	14.8	18.8
	Max	4.47	5.97	6.96	7.96	10.45	12.45	14.75	18.73
	Min	4.4	5.9	6.87	7.87	10.34	12.34	14.64	18.6
$d_3$	Nom =	4.5	6	7	8	10.5	12.5	14.8	18.8
	Max	4.68	6.18	7.22	8.22	10.77	12.77	15.07	19.13
$d_4$	Max	3.15	4.2	5.25	6.3	8.4	10.5	12.6	16.8
$e$	Min	8.15	9.83	10.95	12.02	15.38	18.74	20.91	26.51
$h_1$	Nom	0.55	0.65	0.7	0.75	0.9	1.15	1.4	1.8
	Tol		0 -0.1		0 -0.15		0 -0.2		
$h_2$	Nom	0.25	0.35	0.4	0.4	0.5	0.65	0.8	1.0
	Tol		0 -0.1		0 -0.15		0 -0.2		
$b$		0.8	0.8	0.8	0.9	1	1.25	1.25	1.5
	Tol	$\pm 0.2$	$\pm 0.2$	$\pm 0.2$	$\pm 0.22$	$\pm 0.25$	$\pm 0.3$	$\pm 0.3$	$\pm 0.4$



**Table 2 Dimensions for Assembly of Hexagon Weld Nuts ( Before Welding )**  
( Clause 3 )

All dimensions in millimetres.



Thread Size	$d_1$	M3	M4	M5	M6	M8	M10	M12	M16
$d_5$ Nom =	Min	4.5	6	7	8	10.5	12.5	14.8	18.8
	Max	4.57	6.07	7.09	8.09	10.61	12.61	14.91	18.93
Plate	Min	0.63	0.75	0.88	0.88	1	1.25	1.5	2
Thickness, a	Max	2.5	3	3.5	4	4.5	5	5	6

## ANNEX A

( Clause 1.2 )

### GENERAL INFORMATION ON USE OF HEXAGON WELD NUTS

**A-1** The essential features of a weld nut are as follows:

- Spigots ( rings ) which hold the nut in the hole ( aperture ).
- Three studs ( knobs/projections ) for the welding of the nuts which constitute a three-point contact on the butting surface, so that the bearing pressure during the welding is uniform.
- Countersunk hole at the weld nut to protect the feed side ( inlet ) of the thread during welding.

**A-2** Weld nuts may be welded on with any modern automatic welding machine. The

current-strength, duration and bearing pressure are given in the graph as shown in Fig. 1.

The above values may deviate from these curves, depending upon the quality of the surface and the contact effect. A precise adjustment can be made in this manner, independently of the judgement or skill of the welder so that each nut gets welded on under identical conditions.

**A-2.1** In order to ensure a good welding, nuts and metal sheets should be weld-worthy, that is they should be free from oil and rust, without scales ( or cinders ) and without surface treatment.

**A-2.2** Weld nuts may even be welded on with narrow ( small ) sheet profiles and at places which are not easily accessible.

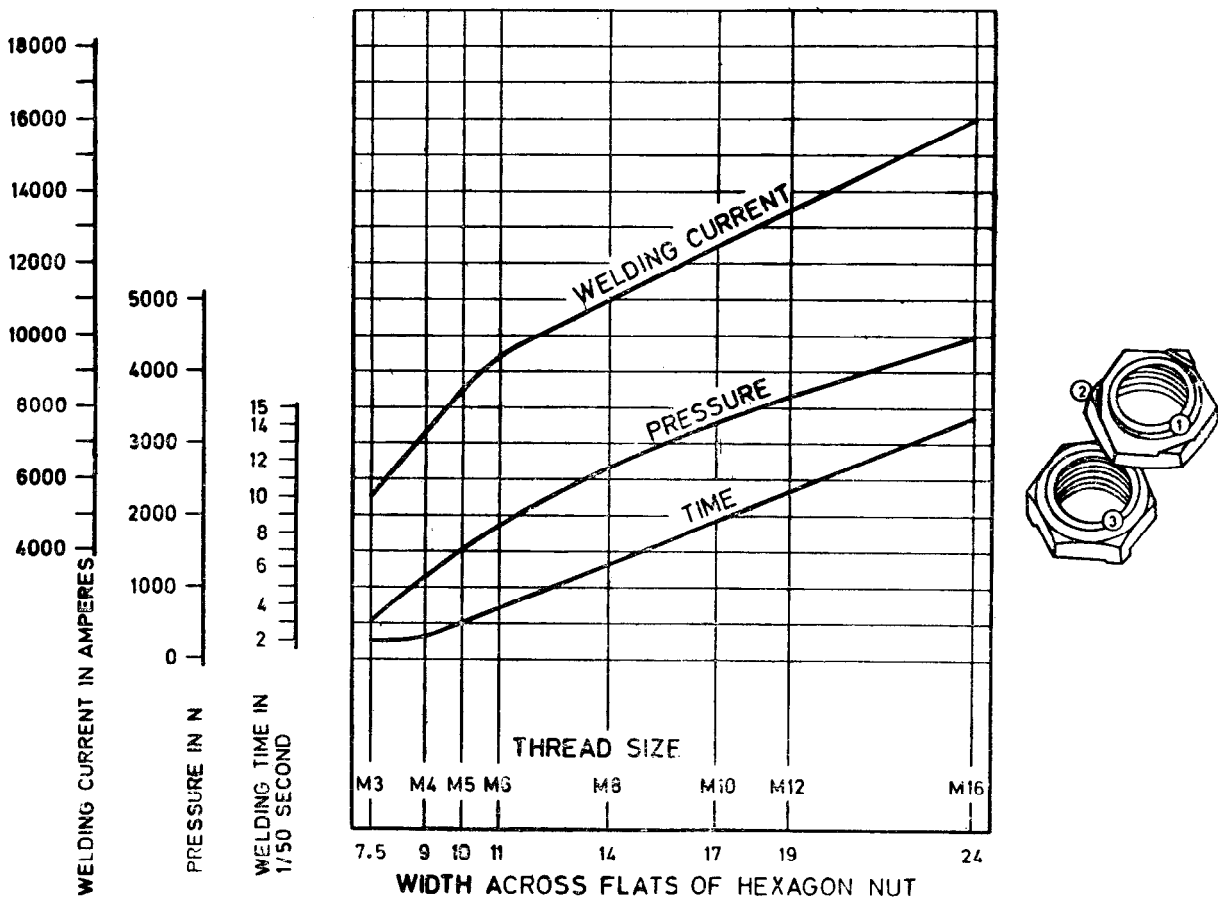


FIG. 1 CURRENT-STRENGTH, DURATION AND BEARING PRESSURE

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